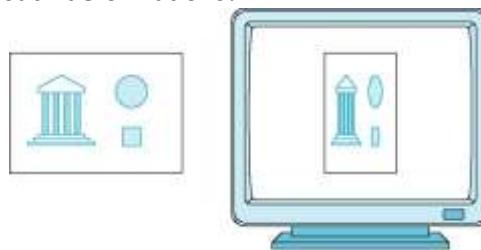


Sheet 5

1. The following figure shows a scene that appears deformed when displayed on the output screen of an OpenGL program

- Discuss possible reasons that could lead to the shown deformation
- How you can avoid such deformations?



2. Write an OpenGL program to draw a damped cosine functions four times, each in a separate quarter in the output graphics window. Hint; use the viewport setting to change the location and size of the output graphics area with respect to the output graphics window.

3. Space filling curves have interested mathematicians for centuries. In the limit, these curves have infinite length, but they are confined to a finite rectangle and never cross themselves. Many of these curves can be generated iteratively. Consider the "rule" pictured in the figure below that replaces a single line segment with four shorter segments. Write a program that starts with a triangle and iteratively applies the replacement rule to all the line segments. The object that you generate is called the Koch snowflake. For other examples of space-filling curves.



The resulting figures are as follows

